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New species and records of *Eurysunius*, subgenus of *Astenus* DEJEAN, from the Iberian Peninsula (Coleoptera: Staphylinidae, Paederinae)

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Abstract: *Astenus* (*Eurysunius*) *segurae* sp. n. (Spain: Andalucía) and *A. (E.) alcarazae* sp. n. (Spain: Castilla-La Mancha) are described, illustrated, and distinguished from similar congeners. Several records of *Eurysunius* species from the Iberian peninsula are presented. Recent observations suggest that at least some of the species of the genus are associated with ants of the genus *Tetramorium* MAYR.

Key words: Coleoptera, Staphylinidae, *Astenus*, *Eurysunius*, Palearctic region, Spain, Portugal, taxonomy, new species, new records, myrmecophily

Introduction

The subgenus *Eurysunius* REITTER 1909 is apparently confined to the Western Palearctic region and currently includes 42 species (subspecies and varieties not considered), the vast majority of them occurring in the western parts of the Mediterranean. Only 9 species are present in the Eastern Mediterranean and the Caucasus region. 16 species have been recorded from the Iberian Peninsula (ASSING 2002, 2003, COIFFAIT 1984). Fully winged species are unknown in the subgenus, but at least some species from the Eastern Mediterranean still have rudiments of a palisade fringe at the posterior margin of the abdominal tergite VII. All the *Eurysunius* species are considered rare or extremely rare; several species are represented only by their respective holotypes. COIFFAIT (1984) considered an association with ant nests a possible explanation for this rarity: "Il est possible que ces espèces ... soient normalement les hôtes des parties souterraines des fourmilières". Indeed, WOLLASTON (1864) already observed that *A. myrmecophilus* (WOLLASTON) from the Canary Islands was "confined ... to nests of a species of *Myrmica*". Later, it was discovered that the host ant is a species of *Tetramorium* MAYR, not of *Myrmica* LATREILLE (ASSING 2002). Unfortunately, coleopterists are rarely myrmecologists and vice versa, so there had been no further concrete evidence of myrmecophily until recently, when several species were found to be regularly associated with ants, in all cases with ants of the genus *Tetramorium*. Besides *Astenus* (*Eurysunius*) *myrmecophilus*, this applies to *A. (E.) truncatus* COIFFAIT, the two species described below, and an unidentified *Eurysunius* species from Spain. It seems worth noting that all the specimens treated below were collected in the period from late autumn to early spring (November - April).

Material, measurements and abbreviations

The material examined is deposited in the following collections:

MHNG Muséum d'histoire naturelle, Genève (G. Cuccodoro)
 NHMW Naturhistorisches Museum Wien (H. Schillhammer)
 OÖLML Oberösterreichisches Landesmuseum/Biologiezentrum Linz
 cAss author's private collection
 cFel private collection B. Feldmann, Münster
 cSch private collection M. Schülke, Berlin
 cWun private collection P. Wunderle, Mönchengladbach

The following abbreviations are used for the measurements, which are given in mm:

AL: length of antenna; HW: head width; PW: maximal width of pronotum; PL: length of pronotum along median line; EL: length of elytra from apex of scutellum to posterior margin; ML: length of aedeagus from apex of ventral process to base; TL: total length.

Astenus (Eurysunius) segurae sp. n. (Figs. 1-6, 13)

H o l o t y p e ♂ [with 4 workers of host ant attached to the pin]: E - No. 5, Andalucia, Sierra de Segura, 15 km S Pontones, 1580m, 38°04'23N, 02°41'19W, 7.IV.2003, leg. V. Assing / Holotypus ♂ *Astenus segurae* sp. n. det. V. Assing 2003 (cAss). **P a r a t y p e s**: 2♂♂, 10♀♀: same data as holotype (cAss, cSch, OÖLML); 3♂♂, 1♀: same data, but leg. Wunderle (cWun).

D e s c r i p t i o n: Measurements (in mm) and ratios (range, arithmetic mean; n=13): AL: 0.82 - 0.95, 0.89; HW: 0.72 - 0.82, 0.78; PW: 0.83 - 0.94, 0.88; PL: 0.60 - 0.69, 0.65; EL: 0.32 - 0.35, 0.33; HTiL: 0.45 - 0.49, 0.47; HTaL: 0.30 - 0.33, 0.32; ML: 0.65 - 0.69, 0.67; TL: 3.4 - 4.3, 3.8; PW/HW: 1.06 - 1.17, 1.13; PL/PW: 1.27 - 1.40, 1.34; EL/PL: 0.47 - 0.53, 0.51; HTiL/HTaL: 1.45 - 1.55, 1.51.

Facies as in Fig. 1. Forebody reddish brown, with the sides and/or the posterior external area of the elytra sometimes weakly infusate; abdomen dark brown, with the apex and the posterior margins of the segments III - VII lighter; appendages rufous.

Head distinctly transverse (see ratio HL/HW and Fig. 1). Eyes small, in dorsal view about half the length of postocular region, and not protruding from lateral outline of head. Dorsal surface with large, shallow, areolate, dense punctures; interstices with subdued shine. Antennae moderately long (see measurements); antennomeres II - IV of subequal length, V - X decreasing in length, X weakly oblong.

Pronotum distinctly transverse and slightly wider than head (see ratios PW/PL and PW/HW), of transversely subrectangular shape with distinctly convex posterior margin; in anterior lateral area with extensive and deep impression on either side; sides each with two long lateral setae, one in anterior angle and one in posterior angle; dorsal surface with moderately dense, non-areolate rather finely granulose puncturation; interstices on average about as wide as diameter of punctures, with shallow microsculpture, more shining than those of head.

Elytra approximately as wide as and only half as long as pronotum (see ratio EL/PL); puncturation denser, much coarser, and more distinctly granulose than that of pronotum; shallower and less well-defined than that of head and pronotum; laterally and at posterior margin with numerous long black setae, which are longest near posterior elytral angles, but always much shorter than the pronotal lateral setae; lateral margins separated from disc of elytra by distinct longitudinal impression. Hind wings completely reduced.

Abdomen widest at segments V - VI, almost as wide as elytra; puncturation dense and granulose, slightly decreasing in density posteriad; interstices shining, narrower than diameter of punctures on tergite III and slightly wider than diameter of punctures on tergite VII; posterior margin of tergite VII without trace of palisade fringe.

♂: sternite VII in posterior median area slightly depressed and with some modified dark stout setae, posterior margin weakly concave (Fig. 2); sternite VIII deeply and acutely incised posteriorly, pubescence unmodified (Fig. 3); ventral process of aedeagus in ventral view subapically slightly widened and apically pointed, in lateral view weakly bent and apically pointed (Figs. 4 - 6).

Derivatio nominis: The name (noun, genitive) is derived from the Sierra de Segura, where the type locality is situated.

Comparative notes: Based on external characters - especially the puncturation of the forebody, the impressions on the pronotum and the elytra, and the numerous setae on the elytra - and on the similar morphology of the aedeagus, *A. segurae* is closely related to *A. setiger* (VAULOGER) from Ciudad Real. It is distinguished from this species by the lighter coloration, the lower body size, the different morphology of the antennae (in *A. setiger*, antennomere III is longer than II and IV, and X is 1.5 times as long as wide), the finer puncturation of the pronotum, the lower number of lateral setae of the pronotum (in *A. setiger* 4 - 5 on either side), and by the different morphology of the aedeagus, especially in lateral view. For comparison see figure 60A in COIFFAIT (1984).

Distribution and bionomics: The type locality is situated in the central part of the Sierra de Segura in northwestern Andalucía. All the specimens were found under stones in larger colonies of the ant *Tetramorium impurum* (FÖRSTER) (det. X. Espadaler) in a meadow near a pine forest at an altitude of almost 1600 m (Fig. 13). This observation confirms the previous conclusion that some, if not all the species of *Eurysunius* are myrmecophiles associated with ants of the genus *Tetramorium* MAYR (Assing 2002); for further evidence see the notes on the bionomics of the following species and of *A. truncatus* COIFFAIT.

Astenus (Eurysunius) alcarazae sp. n. (Figs. 7 - 12, 14)

Holotype ♂ [with 4 workers of host ant attached to the pin]: E - No. 1, SW Albacete, Sierra de Alcaraz, 20km S Alcaraz, 1110m, 38°33'06N, 02°30'03W, 7.IV.2003, leg. V. Assing / Holotypus ♂ *Astenus alcarazae* sp. n. det. V. Assing 2003 (cAss). **Paratypes**: 2♂♂, 6♀♀: same data as holotype (cAss, cSch, OÖLML); 2♀♀: same data, but leg. Wunderle (cWun).

Description: Measurements (in mm) and ratios (range, arithmetic mean; n=9): AL: 1.03 - 1.07, 1.05; HW: 0.82 - 0.94, 0.88; PW: 0.88 - 0.97, 0.93; PL: 0.65 - 0.72, 0.69; EL: 0.35 - 0.38, 0.36; HTiL: 0.51 - 0.56, 0.53; HTaL: 0.38 - 0.40, 0.39; ML: 0.63 - 0.68; TL: 3.9 - 4.6, 4.2; PW/HW: 1.02 - 1.10, 1.07; PL/PW: 1.31 - 1.39, 1.34; EL/PL: 0.48 - 0.54, 0.52; HTiL/HTaL: 1.33 - 1.44, 1.37.

Facies as in Fig. 7. Blackish brown, with the head and pronotum usually dark brown, and the elytral hind margin and the posterior margins of the abdominal segments lighter; antennae and legs rufous.

Head distinctly transverse (see ratio HL/HW and Fig. 7). Eyes small, in dorsal view about half the length of postocular region, and not protruding from lateral outline of head. Dorsal surface with large, shallow, areolate, dense punctures; interstices with subdued shine. Antennae relatively long (see measurements); antennomeres II - IV of sub-

equal length, V - X decreasing in length, but all of them distinctly oblong, X approximately 1.5 times as long as wide.

Pronotum distinctly transverse and slightly wider than head (see ratios PW/PL and PW/HW), of transversely subrectangular shape with distinctly convex posterior margin; in anterior lateral area with extensive and deep impression on either side; sides each with three long lateral setae, one in anterior angle, one in posterior angle, and one a short distance anterior to middle, much closer to anterior than to posterior seta; dorsal surface with moderately dense, distinctly granulose puncturation; interstices wider than diameter of punctures, with very shallow microsculpture, more shining than those of head.

Elytra approximately as wide as or slightly narrower than pronotum, at suture only half as long as pronotum (see ratio EL/PL); puncturation slightly denser and coarser, but otherwise similar to that of pronotum; laterally and at posterior margin with numerous long black setae, which are longest near posterior elytral angles, the longest setae almost as long as the pronotal lateral setae; lateral margins separated from disc of elytra by distinct longitudinal impression. Hind wings completely reduced. Legs slightly longer and with relatively longer tarsi than in *A. segurae* (see measurements and ratio HTiL/HTaL).

Abdomen widest at segments V - VI, almost as wide as elytra; puncturation as in *A. segurae*; posterior margin of tergite VII without trace of palisade fringe.

♂: sternite VII in posterior median area slightly depressed and with some modified dark stout setae, posterior margin weakly concave (Fig. 8); sternite VIII deeply and acutely incised posteriorly, pubescence unmodified (Fig. 9); ventral process of aedeagus in ventral view subapically slightly widened and apically pointed, in lateral view weakly bent and apically pointed (Figs. 10 - 12).

Derivation of name: The name (noun, genitive) is derived from the Sierra de Alcaraz, where the type locality is situated.

Comparative notes: Like the preceding species, *A. alcarazae* is closely related to *A. setiger*. It is distinguished from this species by the bicoloured elytra, the lower body size, the different morphology of the antennae (in *A. setiger*, antennomere III is longer than II and IV), the lower number of lateral setae of the pronotum (in *A. setiger* 4 or 5 on either side), and by the different morphology of the aedeagus (ventral process in ventral view subapically less strongly dilated and in lateral view regularly bent). For comparison see figures 60A and 60B in COIFFAIT (1984). The similar *A. segurae* is of lighter coloration, has shorter antennae (see measurements and description of antennomere X), a more finely punctured pronotum with only two long lateral setae on either side, shorter lateral setae on the elytra, somewhat shorter legs and tarsi (see measurements and ratio HTiL/HTaL), and a subapically (ventral view) more distinctly widened ventral process of the aedeagus (Figs. 6, 12).

Distribution and bionomics: The type locality is situated in the Sierra de Alcaraz, Castilla-La Mancha. All the type specimens were found associated with the ant *Tetramorium ruginode* STITZ (= *hispanicum* EMERY) (det. Espadaler) under stones in a fallow grassland in northern exposition at an altitude of about 1100 m (Fig. 14).

New records

Astenus (Eurysunius) deharvengi COIFFAIT 1980

Material examined: 1♂, 1♀, Spain, Jaén, Linares, mining area, leg. Franz (NHMW, cAss).

The species has been recorded only from southern Spain (COIFFAIT 1984).

Astenus (Eurysunius) beirensis COIFFAIT 1973

Material examined: 2♂♂, Portugal, Serra da Estrela, S Manteigas, 1450 m, 16.IV.1960, leg. Besuchet (MHNG, cAss); 1♀: Portugal, Serra da Estrela, S Manteigas, 40°20'24N, 07°34'14W, 1234 m, under stone, 18.III.2002, leg. Lompe (cAss); 1♂, Guarda, Nabainhos, 8.-16.XI.1997, leg. Poot (cWun).

The known distribution of *A. beirensis* is confined to northern Portugal (COIFFAIT 1984).

Astenus (Eurysunius) colasi COIFFAIT 1960

Material examined: 3♂♂, 3♀♀, Spain, Andalucía, Tarifa (Ca), III.1991, leg. Poot (cAss, cWun); 1♀, same data, but IV.1991 (cWun); 1♀, same data, but IV.1992 (cWun); 2♂♂, 1♀, same data, but III.1994 (cWun); 2♂♂, same data, but I.1997 (cWun); 2♀♀, Andalucía, Tahivilla, flood debris, 18.XII.1995, leg. Poot (cWun).

The species is endemic to the extreme south of the Iberian Peninsula (COIFFAIT 1960, 1984).

Astenus (Eurysunius) carinatus COIFFAIT 1970

Material examined: 3♀♀, Portugal, Serra da Estrela, NW Manteigas, 40°25'23N, 07°31'24W, 1207 m, arable land, under stones, 19.III.2002, leg. Lompe & Meybohm (cAss); 2♂♂, 3♀♀, same data, but 40°26'13N, 07°34'55W, 1420 m, 20.III.2002, leg. Lompe & Meybohm (cAss).

The species is endemic to the Serra da Estrela in Portugal (COIFFAIT 1984).

Astenus (Eurysunius) truncatus COIFFAIT 1971

Material examined: 4♂♂, 9♀♀, Portugal, Serra de Montezinho, Montezinho, 41°56'13N, 06°45'31W, 1070 m, under stones with *Tetramorium*, 21.III.2002, leg. Lompe & Meybohm (cAss).

Astenus truncatus has been recorded from the northwest of the Iberian peninsula (COIFFAIT 1984). The above specimens were found in colonies of an unidentified species of *Tetramorium*.

Astenus (Eurysunius) callaecianus COIFFAIT 1971

Material examined: 1♀, Spain, Lugo, Sierra del Courel, Louzarela near Fonfria, 1020m, 31.V.1998, leg. Hetzel (cFel).

According to COIFFAIT (1984), the species is endemic to the northwest of the Iberian peninsula.

***Astenus (Eurysunius) martinezi* (UHAGON 1876)**

Material examined: 1♂, Spain, Sevilla, Cinca de Pino, leg. Franz (NHMW); 1♂, Portugal, Beja, Alvito, 22.-30.XI.1997, leg. Poot (cWun).

The species is apparently rather widespread in the Iberian Peninsula (Estremadura, Andalucía, Castilla-León) - COIFFAIT (1984) even reports it from southwest France - and is here recorded from Portugal for the first time.

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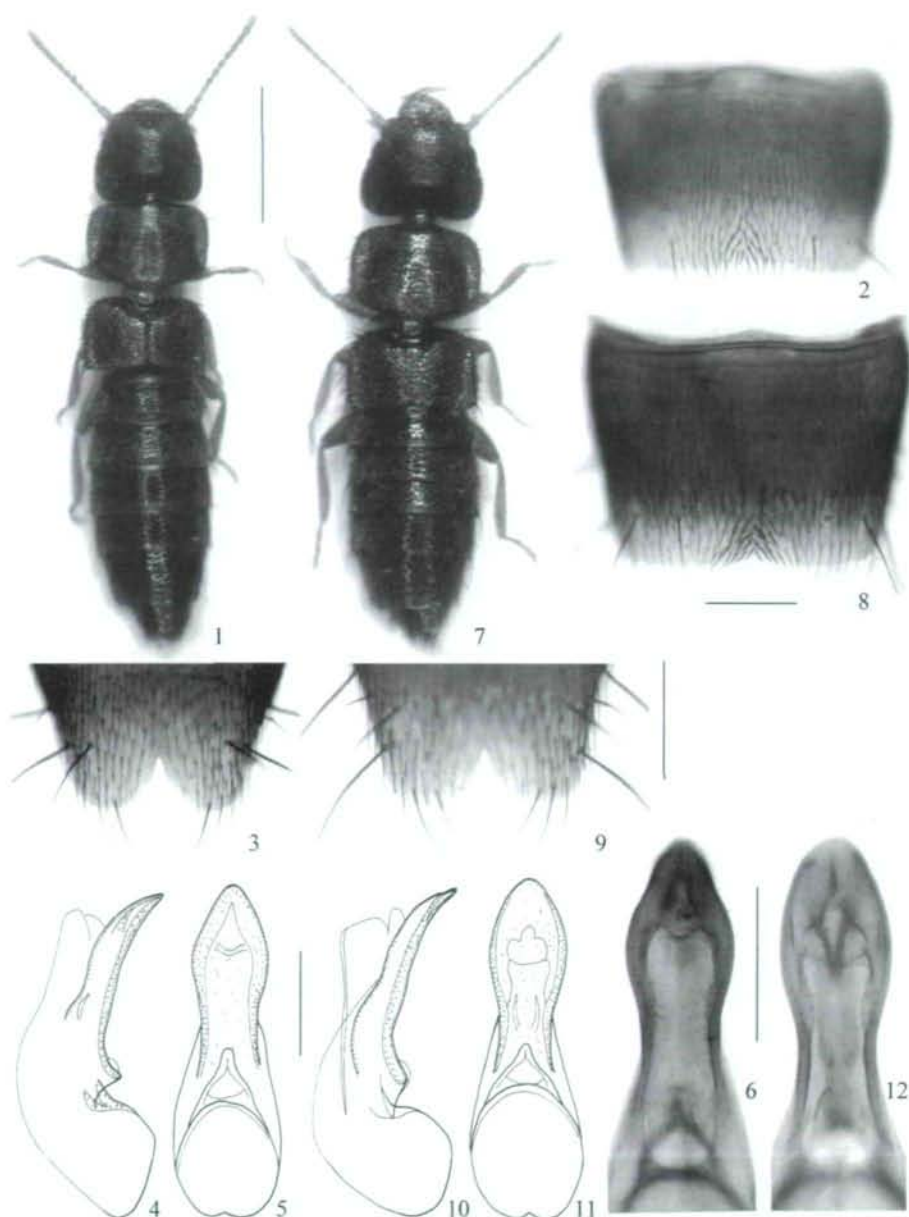
Zusammenfassung

Astenus (Eurysunius) securae sp. n. und *A. (E.) alcarazae* sp. n. werden aus dem südöstlichen Spanien beschrieben und von ähnlichen Arten unterschieden; wesentliche Differentialmerkmale werden abgebildet. Für eine Reihe weiterer *Eurysunius*-Arten werden neuere Funde von der iberischen Halbinsel gemeldet. Verschiedene Beobachtungen aus den letzten Jahren deuten darauf hin, dass zumindest einige Arten der Untergattung *Eurysunius* als - vermutlich obligatorische - Gäste bei Ameisen der Gattung *Tetramorium* MAYR leben.

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Figs. 1-12: *Astenus segurae* sp. n. (1-6) and *A. alcarazae* sp. n. (7-12): 1, 7 – facies; 2, 8 – ♂ sternite VII; 3, 9 – posterior half of ♂ sternite VIII; 4-6, 10-12 – aedeagus in lateral and in ventral view. Scale bars: 1, 7: 1.0 mm; 2-6, 8-12: 0.2 mm.



Fig. 13: Type locality of *Astenus segurae* sp. n.



Fig. 14: Type locality of *Astenus alcarazae* sp. n.